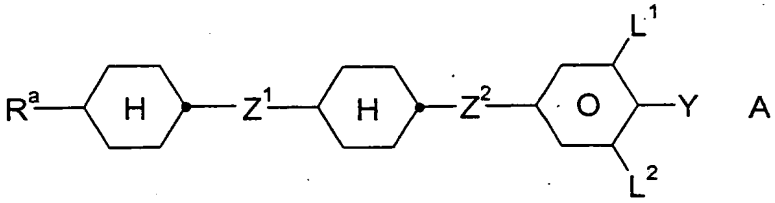
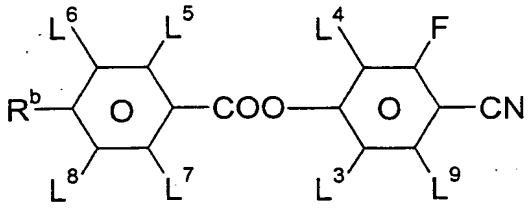
Patent Claims

1. Liquid-crystalline medium, characterised in that it comprises one or more compounds of the formula A



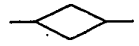
A

and at least one compound of the formula B



B

in which

R^a and R^b are each, independently of one another, H or an alkyl radical having from 1 to 12 carbon atoms which is unsubstituted, monosubstituted by CN or CF_3 or at least monosubstituted by halogen, where one or more CH_2 groups in these radicals may also each, independently of one another, be replaced by -O-, -S-,  , -CH=CH-, -C≡C-, -CO-, -CO-O-, -O-CO- or -O-CO-O- in such a way that O atoms are not linked directly to one another,

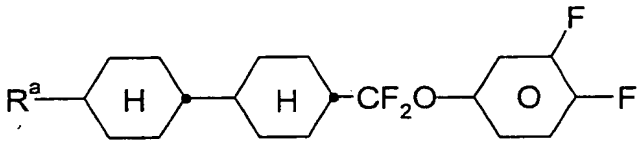
Z^1 and Z^2 are each, independently of one another, $-(CH_2)_4-$, $-CF_2O-$, -COO-, $-OCF_2-$, $-OCH_2-$, $-CH_2O-$, $-CH_2-$,

$-(CH_2)_3-$ or a single bond, in which at least one bridge is $-OCF_2-$ or $-CF_2O-$,

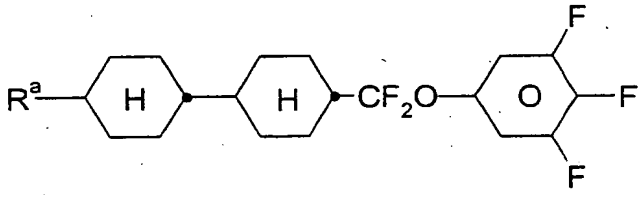
L^1 to L^9 are each, independently of one another, H or F, and

Y is F, Cl, SF_5, NCS, OCN, CN, SCN, or a monohalogenated or polyhalogenated alkyl, alkoxy, alkenyl or alkenyloxy radical, each having up to 5 carbon atoms.

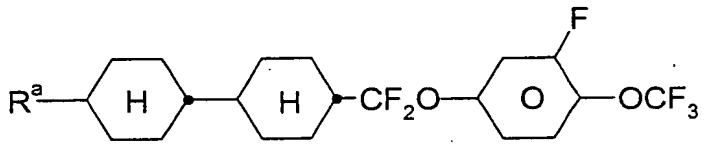
2. Liquid-crystalline medium according to Claim 1, characterised in that it comprises at least one compound of the formulae A-1 to A-12



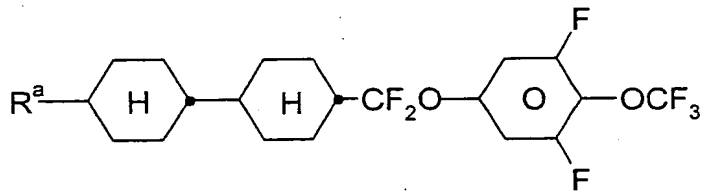
A-1



A-2



A-3



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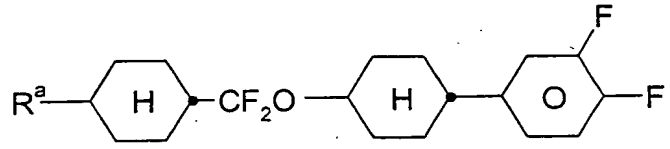

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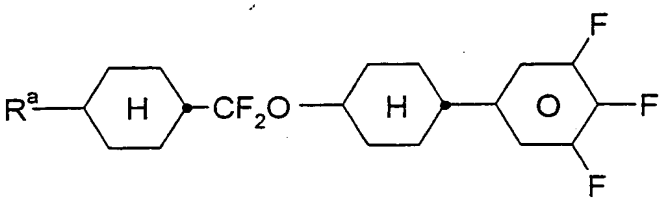
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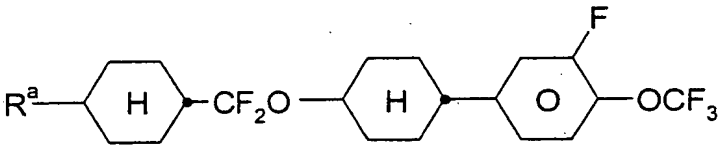
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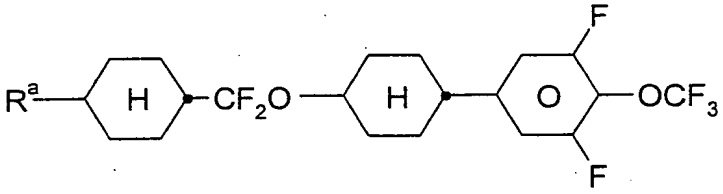
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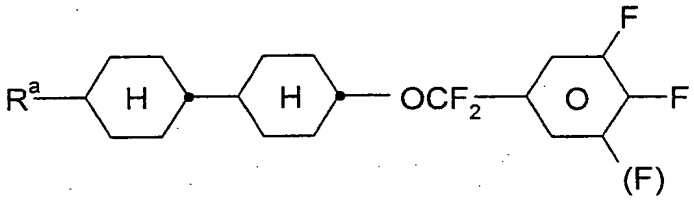
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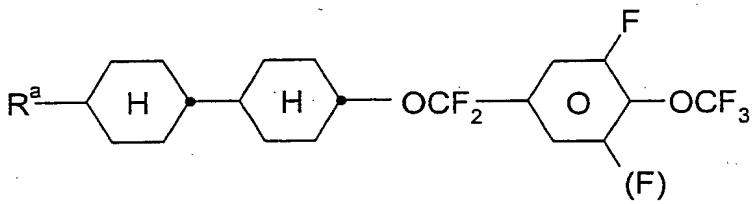
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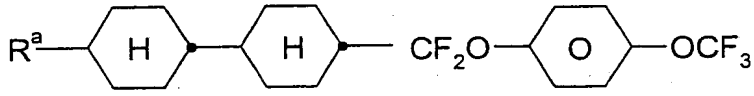
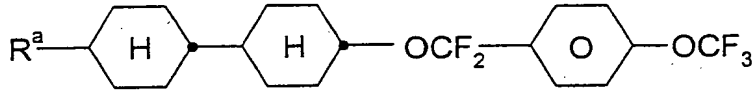
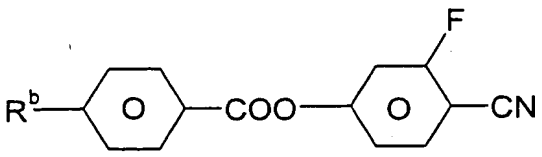

A-11

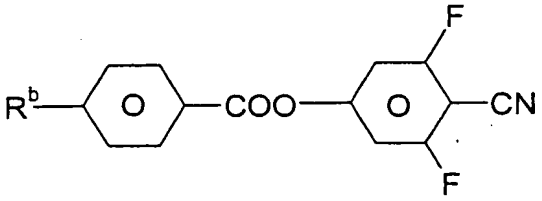

A-12

in which R^a is as defined in Claim 1.

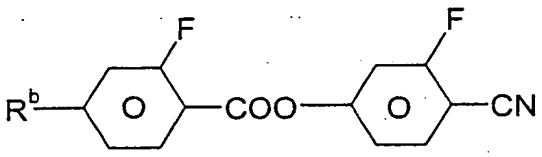
3. Liquid-crystalline medium according to Claim 1 or 2, characterised in that it comprises at least one compound of the formulae B-1 to B-6



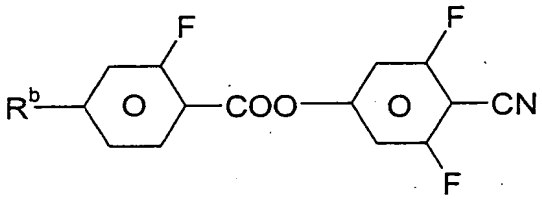
B-1



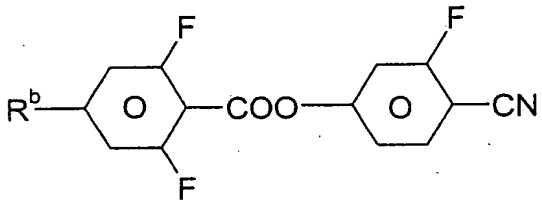
B-2



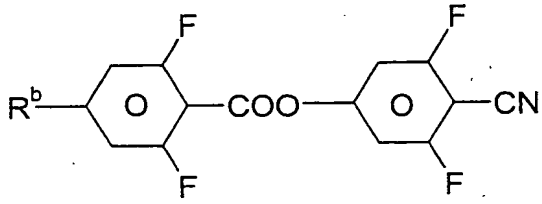
B-3



B-4



B-5

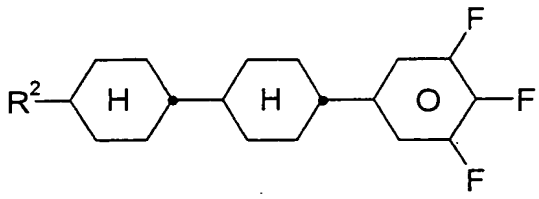


B-6

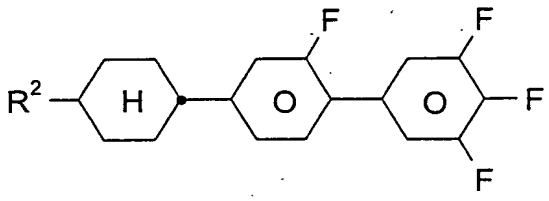
in which

R^b is as defined in Claim 1.

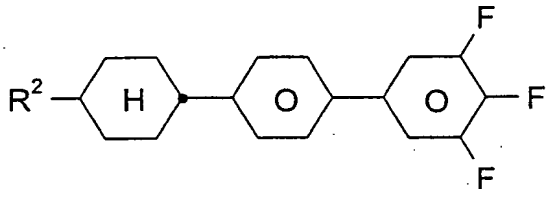
4. Liquid-crystalline medium according to one of Claims 1 to 3, characterised in that it additionally comprises at least one compound of the formulae IIa to IIj



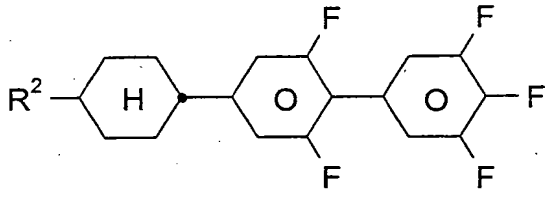
IIa



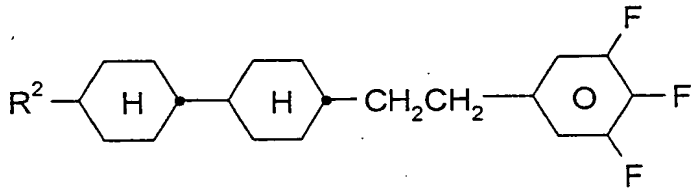
IIb



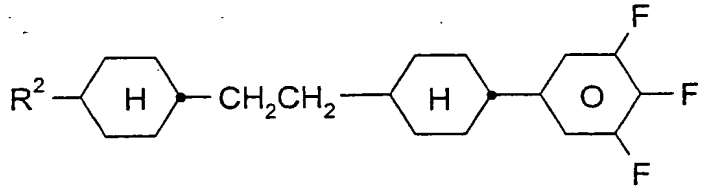
IIc



IId



IIe



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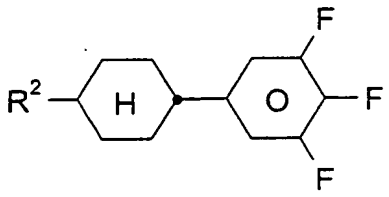
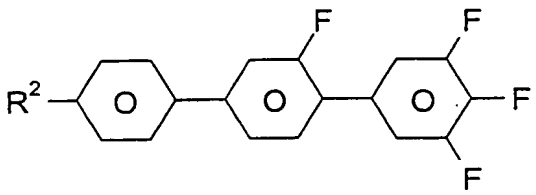
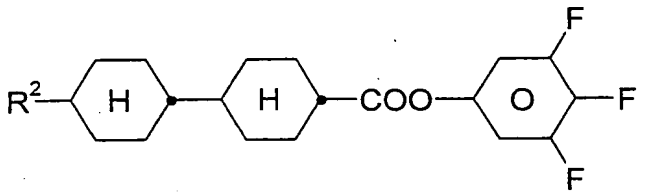


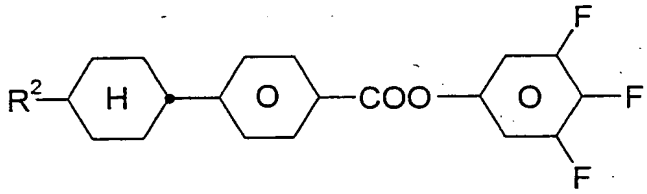
IIg



IIh

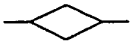


IIi

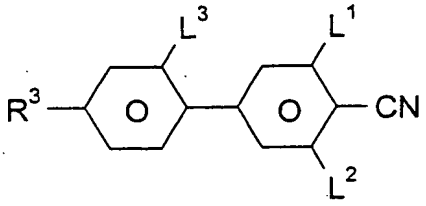


IIj

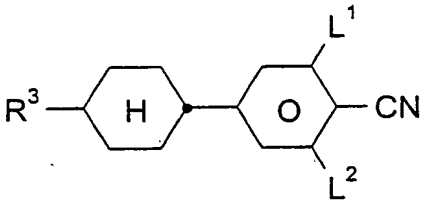
in which

R^2 is an alkyl radical having from 1 to 12 carbon atoms which is unsubstituted, monosubstituted by CN or CF_3 or at least monosubstituted by halogen, where one or more CH_2 groups in these radicals may also each, independently of one another, be replaced by -O-, -S-,  , -CH=CH-, -C≡C-, -CO-, -CO-O-, -O-CO- or -O-CO-O- in such a way that O atoms are not linked directly to one another.

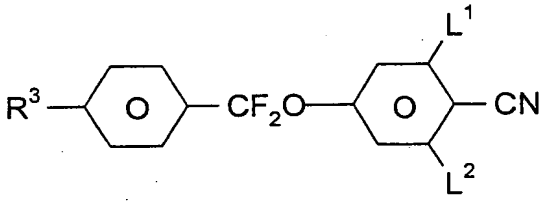
5. Liquid-crystalline medium according to one of Claims 1 to 4, characterised in that it additionally comprises one or more cyano compounds of the formulae IIIa to IIIi



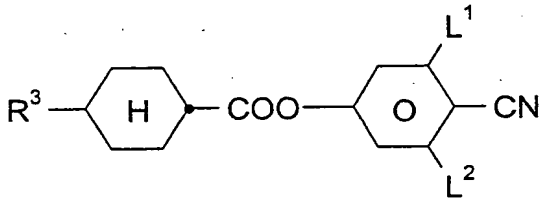
IIIa



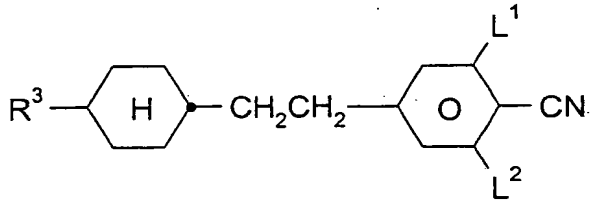
IIIb



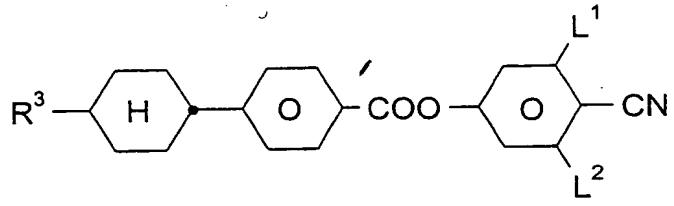
IIIc



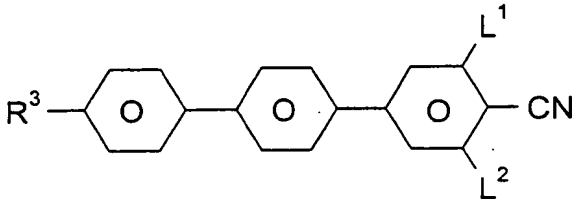
IIId



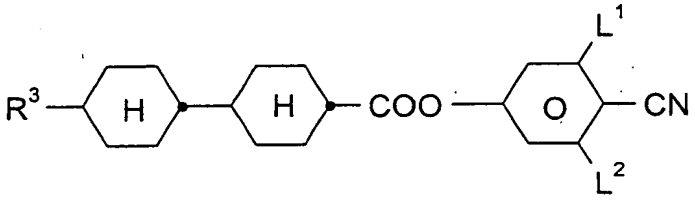
IIIe



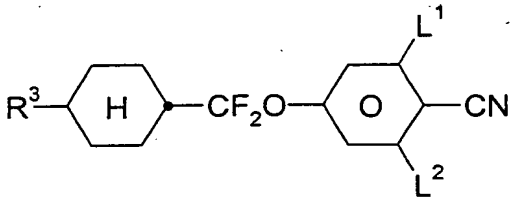
IIIf



IIIg

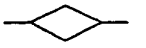


IIIh



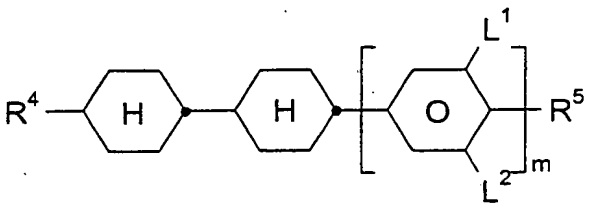
IIIi

worin

R^3 is an alkyl radical having from 1 to 12 carbon atoms which is unsubstituted, monosubstituted by CN or CF_3 or at least monosubstituted by halogen, where one or more CH_2 groups in these radicals may also each, independently of one another, be replaced by -O-, -S-,  , -CH=CH-, -C≡C-, -CO-, -CO-O-, -O-CO- or -O-CO-O- in such a way that O atoms are not linked directly to one another, and

L^1, L^2 and L^3 are each, independently of one another, H or F.

6. Liquid-crystalline medium according to one of Claims 1 to 5, characterised in that it additionally comprises one or more compounds of the formula IV



IV

in which

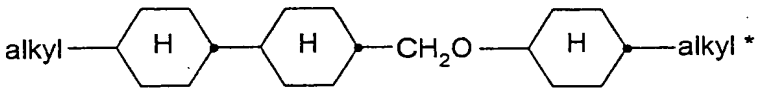
m is 0 or 1,

R^4 is an alkenyl group having from 2 to 7 carbon atoms,

R^5 is as defined for R^a or, if m = 1, is alternatively F, Cl, CF_3 or OCF_3,

L^1 and L^2 are each, independently of one another, H or F.

7. Liquid-crystalline medium according to one of Claims 1 to 6, characterised in that the medium additionally comprises one or more compounds of the formula VII

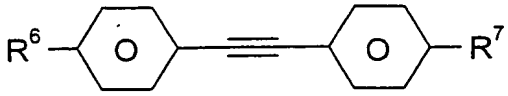


VII

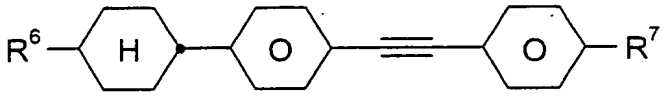
in which

alkyl and alkyl* are each, independently of one another, an alkyl group having from 1 to 7 carbon atoms.

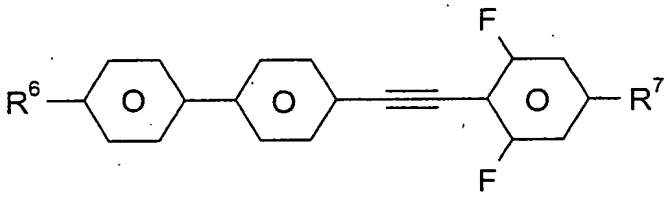
8. Liquid-crystalline medium according to one of Claims 1 to 7, characterised in that the medium additionally comprises one or more tolan compounds of the formulae T2a, T2b and/or T2c



T2a

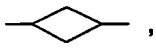


T2b



T2c

in which

R^6 and R^7 are an alkyl radical having from 1 to 12 carbon atoms which is unsubstituted, monosubstituted by CN or CF_3 or at least monosubstituted by halogen, where one or more CH_2 groups in these radicals may also each, independently of one another, be replaced by -O-, -S-,  , -CH=CH-, -C≡C-, -CO-, -CO-O-, -O-CO- or -O-CO-O- in such a way that O atoms are not linked directly to one another.

9. Liquid-crystalline medium according to one of Claims 1 to 8, characterised in that the medium comprises 5-30% by weight of compounds of the formula A.

10. Liquid-crystalline medium according to one of Claims 1 to 9, characterised in that the medium comprises 5-30% by weight of compounds of the formula B.

11. Liquid-crystalline medium according to one of Claims 1 to 10, characterised in that it comprises more than 20% of compounds having a dielectric anisotropy of $\Delta\varepsilon \geq +12$.

12. Use of the liquid-crystalline medium according to Claim 1 for electro-optical purposes.

13. Electro-optical liquid-crystal display containing a liquid-crystalline medium according to Claim 1.

14. TN or STN liquid-crystal display having

- two outer plates, which, together with a frame, form a cell,
- a nematic liquid-crystal mixture of positive dielectric anisotropy located in the cell,
- electrode layers with alignment layers on the insides of the outer plates,
- a tilt angle between the longitudinal axis of the molecules at the surface of the outer plates and the outer plates of from 0 degree to 30 degrees, and
- a twist angle of the liquid-crystal mixture in the cell from alignment layer to alignment layer with a value of between 22.5° and 600°,
- a nematic liquid-crystal mixture consisting of

  a) 15 – 75% by weight of a liquid-crystalline component A consisting of one or more compounds having a dielectric anisotropy of greater than +1.5;

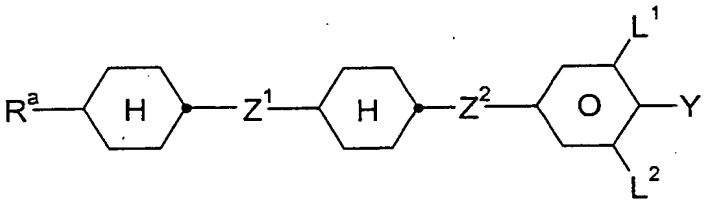
  b) 25 – 85% by weight of a liquid-crystalline component B consisting of one or more compounds having a dielectric anisotropy of between -1.5 and +1.5;

  c) 0 – 20% by weight of a liquid-crystalline component D consisting of one or more compounds having a dielectric anisotropy of below -1.5, and

  d) if desired, an optically active component C in such an amount that the ratio between the layer thickness (separation of the outer plates) and the natural pitch of the

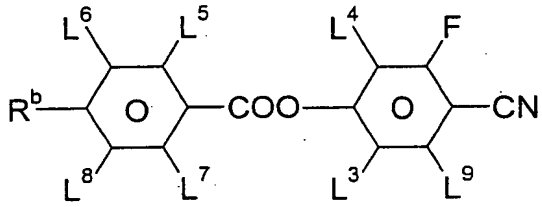
chiral nematic liquid-crystal mixture is from about 0.2 to 1.3,

characterised in that component A comprises at least one compound of the formula A



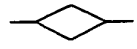
A

and at least one compound of the formula B



B

in which

R^a and R^b are each, independently of one another, H or an alkyl radical having from 1 to 12 carbon atoms which is unsubstituted, monosubstituted by CN or CF_3 or at least monosubstituted by halogen, where one or more CH_2 groups in these radicals may also each, independently of one another, be replaced by -O-, -S-,  , -CH=CH-, -C≡C-, -CO-, -CO-O-, -O-CO- or -O-CO-O- in such a way that O atoms are not linked directly to one another,

Z^1 and Z^2	are each, independently of one another, $-(CH_2)_4-$, $-CF_2O-$, $-OCF_2-$, $-OCH_2-$, $-CH_2O-$, $-CH_2-$, $-(CH_2)_3-$ or a single bond, in which at least one bridge is $-OCF_2-$ or $-CF_2O-$,
L^1 to L^9	are each, independently of one another, H or F, and
Y	is F, Cl, SF_5, NCS, OCN, CN, SCN, or a monohalogenated or polyhalogenated alkyl, alkoxy, alkenyl or alkenyloxy radical, each having from 1 to 5 carbon atoms.